

# THE ACCESSIBLE MULTIMEDIA EDUCATIONAL PILLS (MEP): A FORMAT TO PROMOTE INCLUSION IN CORPORATE DIGITAL LEARNING

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## ABSTRACT

This paper describes a multimedia content delivery system for e-learning through an accessible, omni-channel, multimedia framework. In particular, the paper describes technical solutions and methods that make asynchronous training course accessible and inclusive without ever compromising its effectiveness and level of engagement. The format presented in this paper that is Multimedia Educational Pills aims at making online courses more pleasant and engaging for everyone, including people with disabilities. The accessibility aspects presented include features regarding both the framework and the contents of the learning pills.

## KEYWORDS

Inclusion, Accessibility, Digital Corporate Learning, Multimedia Learning

## 1. INTRODUCTION

In the *infosphere*, the hybrid space where real and digital life integrate and interpenetrate, there are learning opportunities like never before in history (Amicucci, 2021). The framework described in this paper has been ideated to face complexity and manage new hybrid contexts of learning. To challenge complexity, in addition to technical and domain-specific skills, organizations should also, and especially, promote strategic skills, such as cognitive flexibility. As described in Giordani et. al (2012) “MEPs are highly concentrated courses, designed to address a topic through multiple representations, following a recursive, non-cumulative, logic, as pointed out by the Cognitive Flexibility Theory methodology”. The format during the last years has been improved and new versions have been released. The original format created with this framework (multimedia training course, or multimedia educational pill, from now on, MEP):

- Is based on the Multiple Intelligence Theory and aims at activating various types of intelligence (Gardner, 1991). MEPs are made up of multiple resources. Each learning object has its own particular shape, perspective and conceptual dimension (Giordani et al, 2012)
- Is based on the Cognitive Flexibility Theory (Spiro et al, 1994). It digs deep into topics and content through the crisscrossing landscape metaphor, using different languages and perspectives.
- Promotes engagement through storytelling and gamification techniques
- Is based on micro-learning strategies
- Aims at ensuring inclusivity by developing channels focused on assistive technologies and enhancing content.

The format MEP has gone through many releases, the last one includes specific features for accessibility.

Making training courses accessible and inclusive is an urgent topic even for corporate e-learning. And there's a wide range of reasons for that. First of all, e-learning must be a pleasant, rewarding, and valuable experience for everybody. Training is an essential form of social responsibility and can help improve our society. We believe it must be as inclusive as possible, without any discrimination and marginalization. Moreover, focusing on inclusion means being in line with the UN's 2030 agenda and ESG principles, i.e. the

three main factors for measuring the sustainability of an investment. Italian and EU regulations require private and public organisations to comply with them. For example, the European Accessibility Act is a directive that promotes the accessibility of products and services. In Italy, we refer to the Web Content Accessibility Guidelines issued by the World Wide Web Consortium (W3C)<sup>1</sup>.

## 2. THE ACCESSIBLE MULTIMEDIA TRAINING COURSE

### 2.1 Design Principles for Accessibility

The design of this accessible format follows three principles:

- Designed for all. It means that it's been designed to be accessible and engage everybody. Every course takes into consideration all types of people who can be interested in it. They use multiple languages and provide as many learning methods.
- Improved to be inclusive. Not simplified but expanded for everybody. Instead of removing non-accessible resources, MEPs enhance the existing ones, adding new uses and learning methods.
- Accessible by nature. We don't need to make adjustments or adaptations. Skilla training courses are accessible by nature because they're naturally multiple.



Figure 1. The MEP layout

### 2.2 Technological and Methodological Implementations for Accessibility

What does Accessible Multimedia Training Course technically mean? What characteristics must it have?

It is a course enhanced by two aspects:

1. the technology with which the courses are created (Pill Authoring Tool)
2. the multimedia object contents that are part of the pill.

The changes made in the latest version are much more than just a graphic design makeover. They ensure a pleasant experience for everybody, including people with disabilities.

#### 2.2.1 Accessible Framework

The Pill Authoring Tool is the technology through which the course is created, and which controls the framework and ensures some fundamental accessibility features are fulfilled. Skilla MEP are designed to be compatible with the most common readers/support tools. In addition, advanced commands allow users with disabilities to browse the interface and enjoy the accessibility-optimized content. The framework of training course features a highly usable and accessible interface in compliance with Web Content Accessibility Guidelines 2.1 (levels A + AA). Other technical options of the framework:

- Subtitles and audio descriptions for video content
- Possibility of browsing the course's objects using a keyboard

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<sup>1</sup> <https://www.w3.org/TR/WCAG21>

- Possibility of zooming in the content from the browser
- Possibility of displaying equivalent textual content for visual content
- Suitable contrast and correct use of colors to ensure full legibility
- Suitable font size and spacing
- Animation minimization: the course will not display animation if the operating system has disabled it.
- Possibility of browsing the interface also via vocal support

### 2.2.2 Accessible Content

However, the framework alone is not enough to ensure accessibility. Even the content of the training course must be accessible. That's why every Learning Object of the course focuses on accessibility and inclusion:

- Alternative texts for all visual content (cartoons, visual thinking, etc.)
- Video content: adequate reading and listening speed (attention to the clarity and timing)
- Graphics enhance the font and images while minimizing exposure to non-accessible color contrast
- Subtitling that includes punctuation
- Self-consistent and self-explanatory audio that can be understood without the support of images
- PDF eBook that can be used by screen readers, which therefore can be read by assistive software
- The content provided is explained as clearly and briefly as possible to be easily understood

## 3. CONCLUSION

At the end of the project, our multimedia training courses obtained a proof of compliance from a specialized company. MEP comply with regulations EN 301 549 v. 2.1.2 (08-2018) and EN 301 549 v. 3.2.1 (03-2021), corresponding to level AA of the Web Content Accessibility Guidelines (WCAG) 2.1 and referenced in the "Guidelines on the Accessibility of IT tools" issued by AgID (Agenzia per L'Italia Digitale).

For the next steps of the research, we will monitor users' experience to improve the model, in order to understand the impact and check whether the objectives have been achieved. Moreover, some new aspects will be implemented based on the users' feedback. For example, some LOs will be enriched with videos translated into sign languages.

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